WITH THE COLLECTORS

Having Fun with the Crosley Model 50

BY ROBERT B. ENEMARK

Here, Robert Enemark writes about an early battery set, the 1-tube, Crosley Model 50. By adding a battery box, an interface for modern, low-impedance phones, and an amplified speaker option, he has made the old Model 50 into a convenient set to display and operate. (Editor)

The Crosley Model 50 1-tube regenerative receiver, shown in Figure 1, was introduced in 1925. The circuitry was licensed for manufacture under Armstrong's patent #1,113,149, (experimental and Ham use). It is probably the simplest such circuit that works and operates nicely. It uses a single Type 01-A tube, requires both 6-volt and 22.5-volt batteries, and drives high impedance headphones.

INTERESTING FEATURES

This little radio has several interesting features. The tuning capacitor is a "book-type" in that two molded "mud" plates covered with conducting foil are hinged together on one side and kept open with a spring. Between these plates is a large mica sheet for insulation and increased dielectric factor. One plate is fixed while the other can be closed, like a book, by turning the large front dial which rotates a cam to close that plate against the other. See Figure 2.

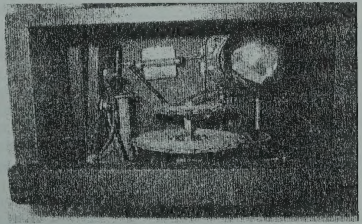

Figure 2. Looking down into the interior of the Crosley Model 50, showing the patented book-type tuning condenser and the operating cam shaft at the left.

The input circuit is series tuned via the antenna connection. Since most antennas of reasonable length and insulated, have more capacitance to ground than the book condenser, there is less circuit detuning due to the antenna.

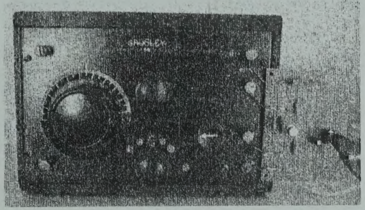

Figure 1. The familiar Crosley Model 50 1-tube receiver of 1925, with the emitter-follower unit I constructed attached.

At any rate, a selector switch on the front panel has four settings to change the inductance of the grid input coil to provide a fairly wide range for the BC and lower SW frequencies. Both the grid and plate coils are "spider-wound," and the coupling between the two is adjusted by a push-pull action using the front panel regeneration control knob. Instead, most sets either rotate the feedback coil, or use a fixed coil together with other means to vary the circuit gain.

THE CROSLEY CIRCUIT

The simple Crosley Model 50 circuit is shown in Figure 3. Granted, even with the high-impedance phones, the volume is low for distant stations unless a really long antenna is used. Also, a good ground seems to be necessary to tame extraneous feedback.

A battery box, its schematic also shown in Figure 3, was made using a flat, plastic container with a lid. Three 9-volt radio batteries were connected in series for a 27-volt plate supply, which should last indefinitely as the plate current is only a milliampere or two. However, the Type 01-A tube filament draws ¼ ampere at 5 volts, so the use of four D-cell batteries will last about the same as in a flashlight. A D-cell holder can be purchased from a parts store like Radio Shack.

High-impedance phones, such as Murdock or other older manufacturers, are usually quite heavy and bulky, whereas small, modern "stereo" phones are comfortable but do not work because they are of low-impedance. A simple interface can be made for these low-impedance phones using an emitter-follower stage with close to unity gain, as seen in Figure 4.

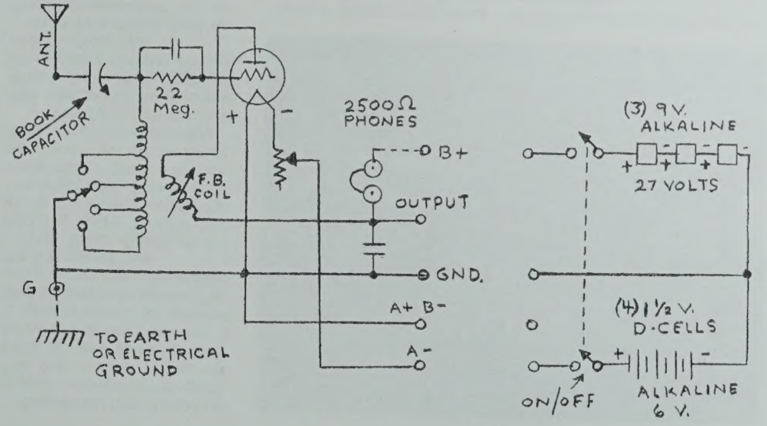

Figure 3. The Crosley Model 50 circuit diagram at the left, and the home-built battery box circuit at the right.

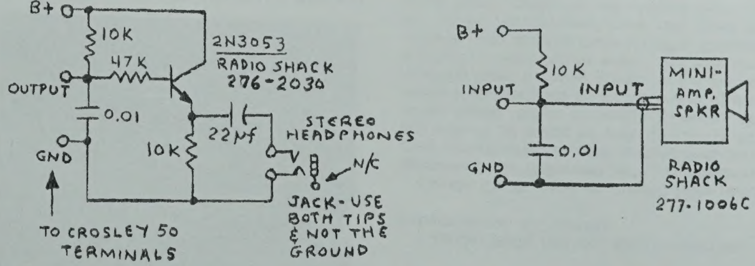

Figure 4. The emitter-follower impedance transformer diagram for low impedance headphones at the left, and an alternative circuit with volume gain at the right.

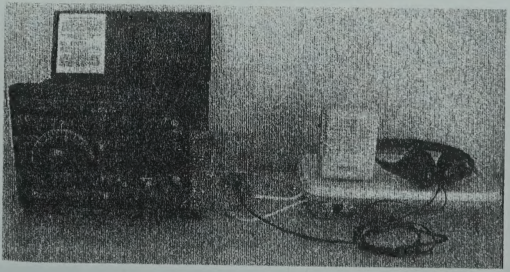

Figure 5. The complete set-up I used to operate the Crosley Model 50. To the far right is the plastic battery box. The mini-amplifier/speaker from Radio Shack is above the battery box and the emitter-follower allowing the use of low-impedance phones is attached to the right of the Model 50.

The Model 50 plate voltage is around 15, so the emitter follower draws less than 2 milliamperes on the average. The 0.01 microfarad bypass capacitor is placed in parallel with the one in the Crosley to lessen feedback problems. Note the connections for the stereo headphones are made to the tip and ring lugs of the headphone socket, with the sleeve lug unused. See Figure 4. This saves buying a stereo-to-monaural plug adapter.

Also shown in Figure 4 are the connections to a Radio Shack mini-amplifier/speaker unit #277-1008C, ($12). This is the easiest way to get some additional gain, and headphones also may be plugged

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(Crosley 50, continued)

into it if desired. This amplifier/speaker unit requires a separate 9-volt radio battery.

OPERATING THE RECEIVER

Operating the receiver takes a little patience, as it does with most regenerative sets. With an antenna and ground connected, push the regeneration control knob all the way in for minimum feedback.

Start with the coil switch at position 4 for the lowest frequencies, and leave the filament rheostat at its lowest, CCW, and the tuning control dial at 100. Turn on the power and advance the rheostat unit until there is background noise, or reduce it if there is a squealing sound.

Tune for a station and adjust the feedback for best audio, just under oscillation point. Note that feedback increases somewhat as the tuning frequency increases, (dial numbers decreasing). Change the coil selector switch to reach more stations. A little experimentation with the tuning dial and selector switch and logging settings will aid in getting back to desired stations.

This set can pick up weak stations almost as well as a modern superhet, albeit with more fussy tweaking here and there. The Crosley Model 50 is a fun set to operate, and it is interesting to see how so few components can do such a good job.

Reference: Dave Crocker, Mashpee, MA

(Robert B. Enemark, P. O. Box 1607, Duxbury, MA 02331)

Robert B. Enemark has been a Ham operator since 1941 with calls W1NLL and W1EC. He has been collecting antique radios since 1982, particularly pre-World War II shortwave sets and telegraph equipment. In 1980, in Duxbury, Mass., he set up a museum display of early French ocean cable telegraph equipment, which he had restored to working condition.

His career spanned World War II radio/radar service in the Marine Corps. to working as a consulting engineer specializing in VLF submarine reception, radar countermeasures, military weapons testing, industrial instrumentation, and photo-electric smoke detectors. He holds over 50 U.S. and foreign patents.

Plastic Radio Cabinet Repair

BY CLAUDE CHAFIN

The following article is a step-by-step photo account of Claude Chafin's painstaking repair of a plastic radio cabinet. Taking photos of such a process can be immensely helpful for your own next project, as well as to A.R.C. readers. (Editor)

I had a 1939 Fada Model 546G that was too neat to throw away, but its cabinet was badly damaged. So, I decided to repair the Plaskon cabinet. The repair process is described below.

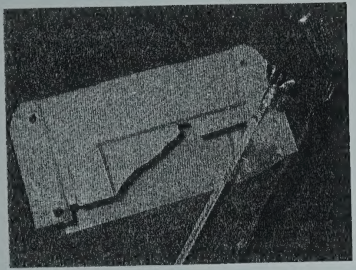


Figure 1. Drastic measures were needed to repair this badly damaged cabinet. In this photograph, the broken portion of the cabinet is being cut away.

Step One: In step one, I filled in any small cracks with Super-Glue, and used Plasti-Pair to fill in the wide gaps. Then, I applied more Super- Glue around the edges of the seams as it dried. Note: Do not use Super-Glue Gel for this repair.

As found, this cabinet had a big chunk missing from its bottom, shown in Figure 1, which required drastic measures. First, I marked, cut away, and squared off the broken area. For a patch, I measured and cut out a piece of Bakelite from another junker cabinet.

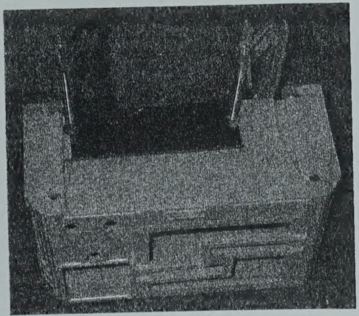


Figure 2. A replacement piece of Bakelite is clamped in place in preparation for gluing.

Step Two: Next, I clamped the patch in place and "spot welded" it in place with lots of Super-Glue, as shown in Figure 2. Once the glue was dry, I applied tape to the seam on the underneath side and edge of the cabinet. Plasti-Pair was poured into the gaps, and Super-Glue was added on the edges of the seams as the Plasti-Pair hardened. When the Plasti-Pair and Super-Glue had cured, all seams were dry-sanded smooth in preparation for painting.

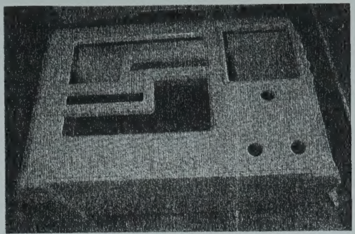


Figure 3. Here, the cabinet had been patched and given a coat of primer.

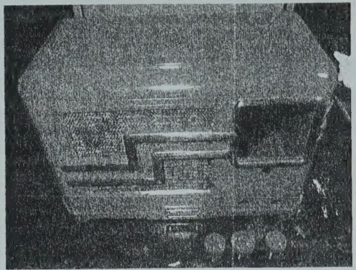


Figure 4. In this view, the cabinet is painted and the grille cloth installed. Note that the knobs have been repainted also.

Step three: Now it was time to apply a coat of primer paint. The first coat of primer will bring out any sanding flaws. Since the primer dries fast, it is easy to resand as required and respray with primer. Figure 3 shows the cabinet after the first primer coat.

Step Four: Finally, to the painting stage. Several light coats are always better than one heavy coat. This also prevents "runs." Start in the corners and hard to see areas. This assures full coverage

At this point, you can be a little creative. Color selection is your first option. Standard prime colors are best. For this radio, I chose red.

Step Five: Your next option is the grille cloth. Normally the original is torn or badly soiled. This radio's grille cloth had nearly disintegrated, but the cardboard back was still good. So, I used some grill cloth that wasn't like the original but still had a good conservative look

I used Elmer's Glue right over the old cloth. Use the glue very sparingly. You can also buy a 3M spray adhesive. Again use very sparingly. Never use any cloth that is too eccentric.

Figure 4 shows the cabinet. With the final coat of spray paint and the grille cloth installed, it is time to install the chassis.

Step Six: The last option is the knobs. Generally, the knobs should match the radio, so in this case I painted the knobs too. If your radio is missing the knobs, try to find some knobs that will fit on the shaft first. Then look to see if they are about the same size as the originals, paint them the same as your cabinet and no one will ever know you cheated the "radio graveyard."

By the way, the radio needed a couple of caps replaced. Its previous owner probably launched it across the living room because it wasn't playing.

The restored Fada Model 546G is shown in Figure 5. I wonder if he would recognize it now?

(Claude Chafin, N0FMO, 4223 E. 42nd Way, Independence, MO 64855)

Claude Chafin grew up around Ham radio operators in the 1960s and 1970s, and became good enough at Morse code to make early contact with all 50 states by code, all on the 40-meter bands. When he began to notice old radios at garage sales, he started collecting and repairing them. Collector guides on the market led him to think that he wasn't the only one collecting and repairing these old relics. Through the 1990s, he perfected some nifty tricks to repair them. Today, he still collects but only buys when he see something he really likes.

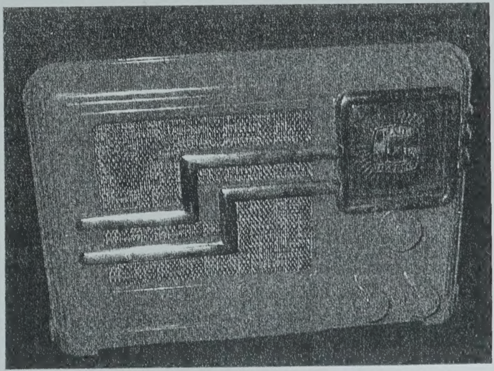
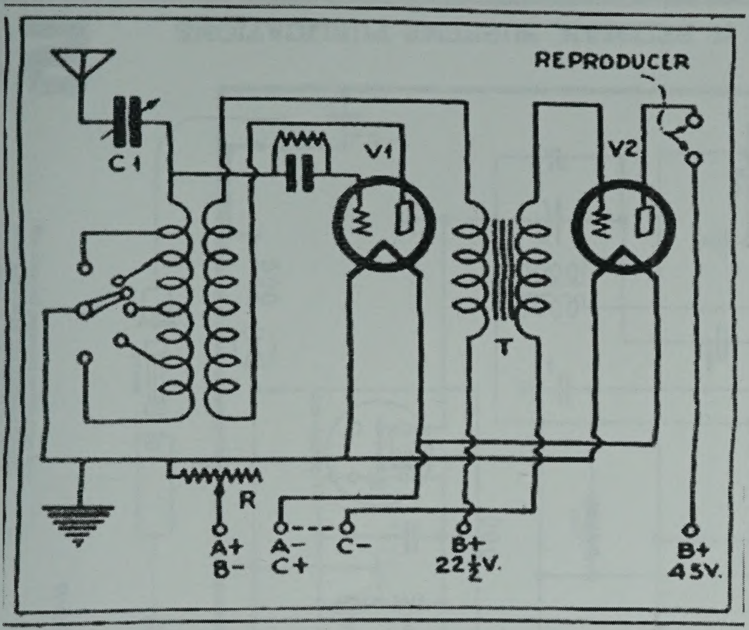
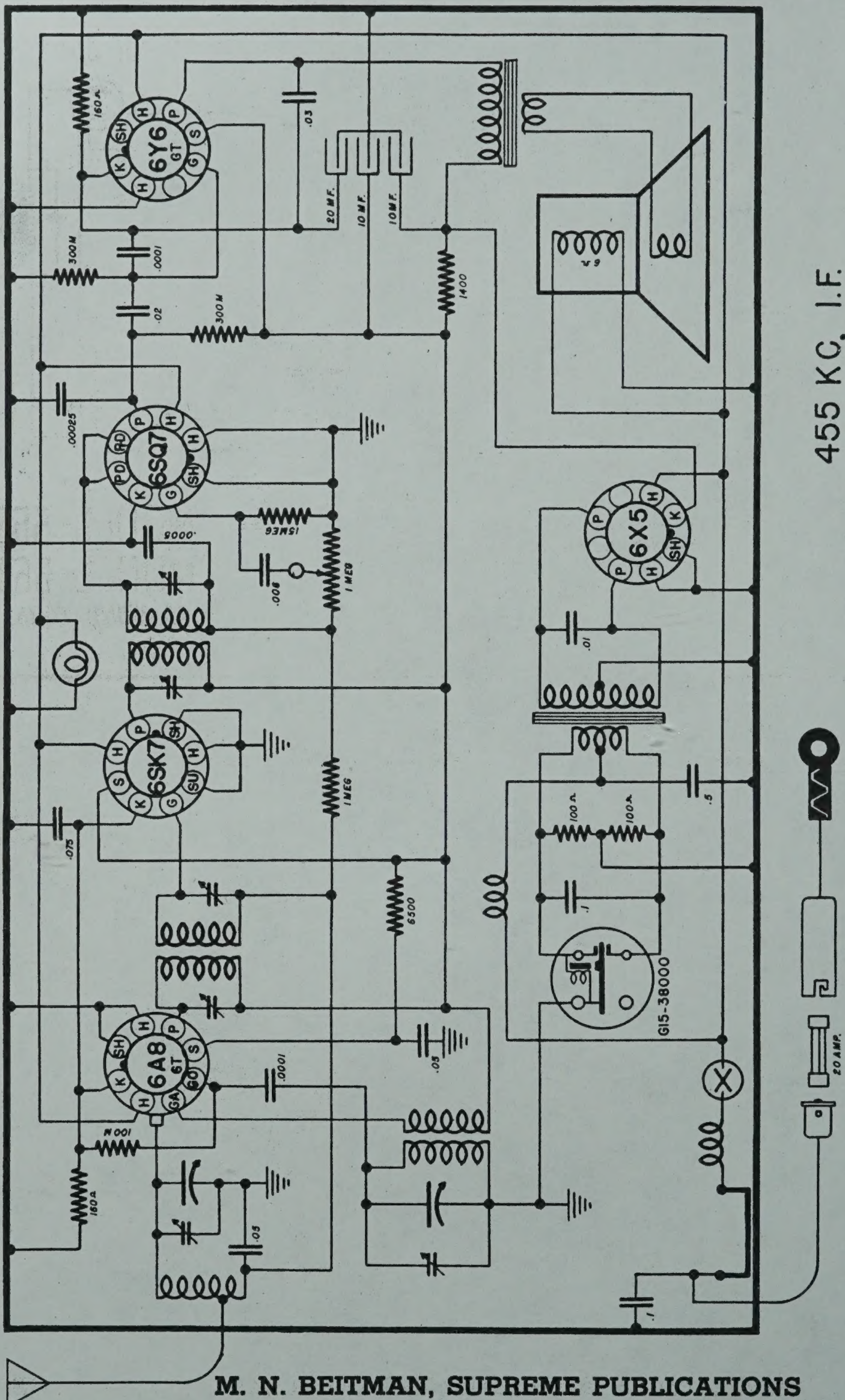


Figure 5. The finished product. The 1939 Fada Model S46G, too neat a radio to throw away, in its restored condition.



The Crosley two-tube "Model 51," in which there is a "C" lead for the single stage of A.F. amplification. Replacing C1 with a .0005-mf. condenser will increase the tuning range.



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CROSLEY

WIRING DIAGRAM—MODEL A-559

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